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he concludes that "the Courlans possess a greater number of grüne characters than they do ralline ones." The *Paludicolæ* are divided into two superfamilies, the *Gruioidea*, and the *Rallioidea*, the first including the Cranes and Courlans, each as distinct families, and the other the Rails, Gallinules and Coots.—J. A. A.

**Grundtvig on the Birds of Shiocton, Wisconsin.**—Mr. Grundtvig's paper was originally published in Danish in 1888, and has recently been translated into English and republished.<sup>1</sup> It is a copiously annotated list of 183 species, the result of systematic daily observations carried on by the author "from October, 1881, to October, 1883," within the limits of a very small area Outagamie County, Wisconsin. The introductory pages (pp. 73-94) describe the author's method of work, the general character and extent of the region treated and the distribution of the birds therein, and also notes the influence of the spring weather upon the arrival of the migratory birds in both 1882 and 1883. During the period mentioned the author appears to have given a large part of his time to the study in the field of the birds of his immediate vicinity, and the results of such detailed work, here presented, possess unusual value and interest. Thanks are due Mr. Faxon and to the Wisconsin Academy for rendering Mr. Grundtvig's paper accessible to English readers.—J. A. A.

**Bourns and Worcester on the Birds of the Philippine Islands.**<sup>2</sup>—The authors of the present paper "had the honor of forming two of the 'party of five collectors from the United States' which constituted the Steere Expedition to the Philippines" in 1887-88, when thirteen of the larger islands of the group were visited in company with Dr. Steere. "Being convinced," say these authors, "that much remained to be done, both in the discovery of new species and in the working out of the exact distribution of species already known, we were extremely anxious to return and continue the work. This we were enabled to do in the summer of 1890 through the liberality of Mr. Louis F. Menage, a public spirited citizen of Minneapolis, Minnesota, and a member of the Minne-

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<sup>1</sup> On the Birds of Shiocton in Bovina, Outagamie County, Wisconsin, 1881-83. By F. L. Grundtvig. Trans. Wisconsin Acad. Sciences, Arts, and Letters, Vol. X, 1894, pp. 73-158, with map. Translated by Charles E. Faxon, from the *Videnskabelige Meddelelser fra den naturhistoriske Forening i Kjöbenhavn for Aaret 1887*, pp. 305-396 (1888). Translation "Issued July, 1894."

<sup>2</sup> Preliminary Notes on the Birds and Mammals collected by the Menage Scientific Expedition to the Philippine Islands. By Frank S. Bourns and Dean C. Worcester. Minnesota Acad. Nat. Sciences, Occasional Papers, Vol. I, No. 1, Dec., 1894. 4to., pp. 64.

sota Academy of Natural Sciences. The entire expense of the expedition was borne by Mr. Menage, and its results were donated to the Academy of Sciences." In the present brochure we have the first fruits of this praiseworthy enterprise, sustained by Mr. Menage. "During the stay of two years and five months in the Philippines" seventeen of the islands were visited. Reference is made to the "careful series of measurements of more than four thousand" specimens of birds, which will appear in their final report, taken for the purpose of showing "the relative amount of individual variation in the representatives of those genera which display a strong tendency to develop local species as compared with other genera which show no such tendency."

In the present preliminary paper 36 species of birds are described as new, and new localities are given for 226 species previously recorded from these islands. Important notes are given on some 40 species previously described from the Philippines, supplementing the previous more or less incomplete descriptions, or treating of questions of nomenclature, including remarks on the *Dicaeum trigonostigma* group as represented in these islands. The final report on the results of this important expedition will be awaited with interest. — J. A. A.

**Merriam's Laws of Temperature Control of the Distribution of Land Animals and Plants.**<sup>1</sup> — In his recent Vice-Presidential address before the National Geographic Society of Washington, Dr. Merriam has given the results of his long-continued investigations of the influence of temperature in controlling the distribution of animals and plants over the earth's surface. Investigations made by botanists tend to show that plants require a certain amount of heat — the amount varying of course with the species — to reach a given stage of development, as leafing, flowering, the maturation of seed, etc. This quantity is computed on the basis of the average temperature of each day which reaches the minimum required for the functional activity of the particular species in question. As Dr. Merriam states it, "the substance of this theory is that the same stage of vegetation is attained in any year when the sum of the mean daily temperatures reaches the same value, which value or total is essentially the same for the plant in all localities." Reasoning from this, Dr. Merriam observes: "If it is true that the same stage of vegetation is attained in different years when the sum of the mean daily temperatures reaches the same value, it is obvious that the *physiological constant of a species must be the total quantity of heat or sum of positive temperature required by that species to complete its cycle of development and reproduction.*" He has

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<sup>1</sup> Laws of Temperature Control of the Geographical Distribution of Terrestrial Animals and Plants. Annual Address by Vice-President Dr. C. Hart Merriam. Nat. Geog. Mag., Vol. VI, 1894, pp. 229-238, pll. xii-xiv.